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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,223	07/24/2003	Samuel C. Ramey	A4-008 US	4545
23683	7590	06/15/2004	EXAMINER	
MOLEX INCORPORATED 2222 WELLINGTON COURT LISLE, IL 60532			NGUYEN, PHUONGCHI T	
			ART UNIT	PAPER NUMBER
			2833	

DATE MAILED: 06/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,223

Applicant(s)

RAMEY ET AL.

Examiner

Phuongchi Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Natori et al (US6315621B1).

In regarding to claim 1, Natori et al discloses a connector comprising a housing (230) having a first (or top) surface and a second (or bottom) surface, the housing (230) having a passageway (233) provided therethrough which extends from the first (or top) surface to the second (or bottom) surface, the passageway (233) having a recess (forming by vertical wall 231) proximate to the first (or top) surface of the housing (230), and a conductive contact (51) received within the passageway (233), the contact (51) having a deformable portion (57) (abstract, lines 14-15) having a tip (88) provided at an end thereof (figures 5 and 7), the deformable portion (57) being capable in an undeformed position (where top end 93 located above a mating contact surface 501) (figure 9) and in a deformed position (where top end 93 located below a mating contact surface 501), at least a (an end) portion of the tip (88) being provided within the recess (forming by vertical wall 231) when the contact (51) is in an undeformed position (where top end 93 located below a mating contact surface 501), at least a (an end) portion of the tip (88) being provided within the recess (forming by vertical wall 231) when a lateral force (coming form a mating contact surface 501) is placed on the contact (51) to deform the deformable portion (57), the recess (forming by vertical wall 231) being sized and

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configured to limit lateral deflection of the tip (88) upon deformation of the deformable portion (57) in a lateral direction. A connector of Natori et al can be used as a land grid array connector.

In regarding to claim 2, Natori et al discloses the connector wherein the tip (86) of the deformable portion (57) has enlarged portion (at tip 88) having a predetermined width (figure 7).

In regarding to claim 3, Natori et al discloses the connector wherein the recess (forming by vertical wall 231) has a width that is slightly larger than (it is inherent) the width of the enlarged portion (at tip 88).

In regarding to claim 4, Natori et al discloses the connector wherein the tip (88) is provided at a first end of the contact (51), and a contact pad (59) is provided at a second end of the contact (51) (figure 6).

In regarding to claim 5, Natori et al discloses the connector wherein the contact pad (59) is flat and flush with the second (or bottom) surface of the housing (figure 9).

In regarding to claim 17, Natori et al discloses the connector wherein the each contact includes a deformable portion (57) and a fixed portion (53), the deformable portion (57) being laterally offset from the fixed portion (53) (figure 9).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6-7 and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Natori et al (US6315621B1) in view of Huang et al (US6688893B1).

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In regarding to claim 6, Natori et al discloses the invention, but lacks a S-shape contact. However, Huang et al teaches the connector wherein the contact (12) is generally S-shaped (figure 2). It would have been obvious to one having ordinary skill at the time the invention was made to change the shape of the contact of Natori et al to be a S shape as taught by Huang et al for the matter of design, since the shape of the contact of Natori et al has the same function as the shape of the contact of Huang et al.

In regarding to claim 7, Natori et al discloses the connector wherein the tip (88) of the deformable portion (57) has an enlarged portion (at tip 88) (figure 7).

In regarding to claim 9, Natori et al discloses the invention, but lacks a plurality of passageways corresponding to plurality of contacts. However, Huang et al teaches a plurality of passages (101) in the housing (102) and a plurality of contacts (12) are provided, respective ones of the contacts (12) being mounted within respective ones of the passageways (101) (figure 1). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector of Natori et al by providing a plurality of passages corresponding to plurality of contacts as taught by Huang et al to expand the connector.

In regarding to claim 10, Natori et al discloses the invention, but lacks the arrangement of the contacts in the housing. However, Howell et al teaches the passageways (101) and the contacts (12) are provided in the housing (102) in a high-density arrangement (figure 1). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector of Natori et al by providing a plurality of passages corresponding to plurality of contacts as taught by Huang et al a high-density arrangement to prevent the contacts from crossing to each other.

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Claims 11, 12, 13, 14, 15, and 16 are rejected for the same reason of claims 8, 3, 4, 5, 6 and 7, respectively.

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Natori et al (US6315621B1).

In regarding to claim 8, Natori et al discloses the connector wherein the contact (51) has a thickness (figure 5). Natori et al does not disclose the length of the thickness of the contact. It would have been obvious to one having ordinary skill at the time the invention was made to provide^{sn} the thickness of the contact of Natori et al a length approximately .0003 inches for the purpose of the user needed.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Howell et al (US6652329B1); Wu (US6406305B1); Szu (US6695624B1); Yumi (US6674018B2); Koopman et al (US6585527B2) are cited to show the land grid array connectors.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchi Nguyen whose telephone number is (571) 272-2012. The examiner can normally be reached on 8:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (571) 272-2800 ext 33. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PCN

June 4, 2004

A handwritten signature in black ink, appearing to read "Ross Gushi", is positioned above the printed name and title.

ROSS GUSHI
PRIMARY EXAMINER